

## REMARKS

### **Status of the Claims**

Claims 1-34 are pending in the application. None of the claims have been amended in this response.

## Oath/Declaration

The Examiner has located an article by the inventor, Michael K. Zyskowski, entitled "Aircraft Simulation Techniques Used in Low-Cost, Commercial Software," AIAA Modeling and Simulation Technologies Conference and Exhibit, August 11-14, 2003, Austin, Texas. <http://fsinsider.com/articles/aircraftsimulation.com>, hereinafter referred to as "Zyskowski". Under the section entitled "CORE SIMULATION ENGINE," the Examiner notes that the author on page 2, column 2 has indicated that he does not claim to have designed or otherwise invented all the information within the article, but the Examiner reminds the applicant of his duty to disclose to the Office all information known to the inventor to be material to patentability as defined in 37 C.F.R. § 1.56. Since the disclosure of this article is no more relevant than the admitted prior art represented by previous releases of Microsoft Corporation's FLIGHT SIMULATOR software program, there was no reason for applicant to have brought this article to the attention of the Examiner.

Claims Rejected under 35 U.S.C. § 112

The Examiner has rejected Claims 1-18 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter that applicant regards as his invention. The Examiner asserts that the term "substantially" used in Claims 1 and 12 renders the claims indefinite because it is unclear what are the metes and bounds of this limitation.

Applicant respectfully disagrees and the Examiner is directed to review the Federal Circuit case, *Liquid Dynamics Corp. v. Vaughan Co., Inc.*, (January 23, 2004) wherein the term “substantial” was interpreted to be a meaningful modifier implying “approximate” rather than “perfect.” Therefore, Claim 1 is directed towards describing a method for enabling a user to create or modify a design for an aircraft and evaluate flight characteristics of the design, wherein the interactive, simulated flying of the aircraft enables the user’s evaluation to be approximately based on a point of view of a pilot flying the aircraft. Claim 12 is directed towards a method for enabling a user to create or modify a design for an aircraft and evaluate flight characteristics of the design as created or modified by the user, wherein the interactively, simulated flying of the aircraft enables the user’s evaluation to be approximately based on a point of view of a pilot flying the aircraft.

In each of these independent claims, applicant has used the term "substantially" in the claims (instead of the word "approximately") to indicate that the user's evaluation is primarily based on a point of view of a pilot flying the aircraft, but possibly differing in at least some small degree. Clearly, a simulation of any kind is typically never perfect in representing the real experience being simulated. There is no reason why one of ordinary skill in the art would fail to understand the intended meaning of the term "substantially" as used in each of the independent claims in this case, and the claims are NOT unclear because they include this term.

If the Examiner has any further questions, the Examiner is respectfully urged to review the meaning of this term with his Supervising Examiner, since "substantially" is a term that is commonly used in claims and is well accepted as not raising any issue under § 112. Accordingly, this rejection of Claims 1 and 12 under 35 U.S.C. § 112, second paragraph, should be withdrawn. Because the same issue is addressed in regard to the dependent claims, dependent Claims 2-11 and 13-18 are also not justifiably rejected under § 112, for the reasons pointed out above.

**Requirement For Additional Information Regarding the Issue of Public Use or On Sale Activity**

The Examiner has indicated that in order for him to properly consider patentability of the claimed invention under 35 U.S.C. § 102(b), he requires additional information as follows:

- (1) Information regarding the features of the different versions of Microsoft Flight simulator dating back to the versions titled “FS98” and “CFS1.0” (as mentioned in column 2, page 2 of Zyskowski) and
- (2) Information as to how these versions of the Microsoft Flight Simulator starting with “FS98” and “CFS1.0” differ from the claimed invention.

Applicant has provided information regarding the features of the different versions as required in Item 1 as Enclosures A, B, C, D, and E. Also, applicant has provided information as required in Item 2 regarding how these versions differ from the claimed invention as shown in the Table, in the attached Declaration of the Inventor.

It may also be helpful to reproduce a portion of the specification that summarizes some of these differences. With respect to how these versions differ from the claimed invention as requested in Item (2), notice that in the specification, applicant has stated the following:

1           While the variety of aircraft that are provided in the FLIGHT SIMULATOR  
2           2002™ program and other flight simulator programs are relatively extensive, the more  
3           dedicated flight simulator hobbyist will likely want to modify an existing design and  
4           eventually create his/her own aircraft design, and then test the design by flying it within the  
5           flight simulation program. Many parameters controlling an aircraft's design affect how it  
6           will fly (or even if it will fly). Therefore, it is important that an appropriate flight dynamics  
7           editing program provide a *relatively user-friendly interface to enable these parameters to be*  
8           *efficiently selected by a user.* Once the user has created a design or modified an existing  
9           design for an aircraft by choosing specific parameters, another program module must then  
10          implement the design by generating flight model data for the aircraft, based on the selected  
11          parameters. To enable the user to test the flight characteristics of the design in the flight  
12          simulation program, the flight model data that are thus generated must be in a form that is  
13          compatible with the flight simulator program. For example, FLIGHT SIMULATOR  
14          2002™ requires that the flight model data for an aircraft be provided in an aircraft.air file  
15          and an aircraft.cfg file (where the italicized word "aircraft" in the name of the "aircraft.air"  
16          file is replaced with a specific word or phrase identifying the aircraft). The aircraft.air file  
17          includes binary data that define aerodynamic coefficients and non-linear tables of data for an  
18          aircraft, while the aircraft.cfg file includes parameters other than flight data, such as  
19          specification of the type and design of the landing gear and scaling factors that are to be  
20          applied to the aerodynamic data. (Emphasis added, page 2, lines 1-21.)

21          Earlier versions of Microsoft Corporation's FLIGHT SIMULATOR™ program  
22          included an add-on program called "FLIGHT SHOP™" that enabled *some editing* of the  
23          parameters for an aircraft design, but it is not usable with the FLIGHT  
24          SIMULATOR 2002™ program, since the add-on program produces only a single data file  
25          that is not compatible with the current flight simulator program. (Emphasis added, page 2,  
26          lines 22-26.)

27          Thus, prior to the claimed invention, neither FS98, CFS1.0 or any other previous versions included  
28          the following features:

- 29           (a) a user interface that enables the user to select parameters (see applicant's Figures 7-17) in  
30           addition to those previously available to be user selected, thus enabling a user to provide  
31           more input in designing and defining an aircraft. In the italic font portions above,  
32           respectively, applicant discloses that a user-friendly interface is available to select  
33           parameters as compared with earlier versions that only allowed some editing of the  
34           parameters, as highlighted in the bold font portion.
- 35           (b) the generation of flight model data from the user input parameters is compatible with the  
36           flight simulator program. In the underlined portions above, applicant discloses how the  
37           flight model data that is generated must be in a form that is compatible since the add-on  
38           program previously used produced only a single incompatible data file.

- (c) The result is described above, i.e., that a user is enabled to test the flight characteristics of the user's design in the flight simulation program;
- (d) Thus, earlier versions lacked the ability to create from scratch, flight model data files compatible with the flight simulator as shown in FIGURE 4, and a user was unable to evaluate this custom design in real-time simulated flight within earlier versions based on a point of view of a pilot flying the aircraft.

Therefore, the Examiner is respectfully requested to withdraw his rejection of Claims 1-34 under 35 U.S.C. § 102(b) based upon a public use or sale of the invention, since the earlier versions of Flight Simulator or Combat Simulator did not provide this functionality that is recited in applicant's claims.

Claims Rejected under 35 U.S.C. § 102(b) As Being Anticipated

The Examiner has also rejected Claims 1-34 under 35 U.S.C. § 102(b) as being anticipated by Zyskowski. The Examiner asserts that Zyskowski describes each element of applicant's claimed invention. Applicant respectfully disagrees for the reasons noted below.

In the interest of reducing the complexity of the issues for the Examiner to consider in this response, the following discussion focuses on independent Claims 1, 12, 19, and 29. The patentability of each dependent claim is not necessarily separately addressed in detail. However, applicant's decision not to discuss the differences between the cited art and each dependent claim should not be considered as an admission that applicant concurs with the Examiner's conclusion that these dependent claims are not patentable over the cited references. Similarly, applicant's decision not to discuss differences between the prior art and every claim element, or every comment made by the Examiner, should not be considered as an admission that applicant concurs with the Examiner's interpretation and assertions regarding those claims. Indeed, applicant believes that all of the dependent claims patentably distinguish over the references cited. However, a specific traverse of the rejection of each dependent claim is not required, since dependent claims are patentable for at least the same reasons as the independent claims from which the dependent claims ultimately depend.

### Patentability of Independent Claim 1

Significant differences exist between Claim 1 and Zyskowski because Zyskowski does not teach or suggest applicant's claim recitation of simulated flying of the aircraft using the plurality of flight model data files based on a user's design of the aircraft. In its entirety, applicant's step (d) recites (with emphasis added):

enabling the user to evaluate the flight characteristics of the design by interactive, simulated flying of the aircraft within a flight simulation program using the plurality of flight model data files, wherein said interactive, simulated flying of the aircraft enables the user's evaluation to be substantially based on a point of view of a pilot flying the aircraft.

For example, applicant's FIGURE 2 illustrates a block diagram that shows the primary program modules used in implementing a preferred embodiment of the present invention. Specifically, flight simulator 32 receives as input at least two files, AIRCRAFT.AIR 28 and AIRCRAFT.CFG 30. The disclosure explains:

Once a user has entered the parameters to modify an existing design or create a new design for an aircraft using flight dynamics editor 24, those parameters effecting the flight model characteristics are input to an aerodynamic coefficients generator module 26. Again, details of the aerodynamic coefficients generator module are disclosed below. The aerodynamic coefficients generator module 26 processes the input data and produces aerodynamic coefficients necessary to produce an accurate flight model for the aircraft design. **To ensure compatibility**, this process produces two data files including an *aircraft.air* data file 28 and an *aircraft.cfg* data file 30. The *aircraft.air* data file includes the aerodynamic coefficients for the aircraft while the *aircraft.cfg* file includes details relating to other aspects of the aircraft design that may not be directly related to the manner it which it flies, such as its control panel configuration. Note that the word *aircraft* in the *aircraft.air* file is generic and will be replaced with a word or phrase that identifies a specific design of aircraft. **These two data files are used as input to a flight simulator module 32 to enable the user to experience the simulated flying of the aircraft design thus modified or created.** (Emphasis added, applicant's specification, page 10, lines 11-25.)

As emphasized in the citation reproduced above, to ensure compatibility, two data files are produced, *aircraft.air* data file 28 and *aircraft.cfg* data file 30. The *aircraft.air* data file 28 includes the aerodynamic coefficients. The *aircraft.cfg* data file 30 file includes details relating to other aspects of the aircraft design, such as its control panel configuration. These data files are produced by aerodynamic coefficients generator 26 (see FIGURE 4), which takes geometrical inputs and creates, from scratch, the aerodynamic coefficients needed to properly simulate an aircraft in real-time simulation. These aerodynamic coefficients are input to the Flight Simulator to enable the user to experience the simulated flying of the aircraft. More specifically, the specification discloses that "...the more dedicated flight simulator hobbyist will likely want to modify an existing design and eventually create his/her own aircraft design, and then test the design by flying it within the flight simulation program" (applicant's specification, page 2, lines 3-4) and "FLIGHT SIMULATOR 2002™ requires that the flight model data for an aircraft be provided in an *aircraft.air* file and an *aircraft.cfg* file (where the italicized word "*aircraft*" in the name of the

1       “aircraft.air” file is replaced with a specific word or phrase identifying the aircraft). The *aircraft.air* file  
2       includes binary data that define aerodynamic coefficients and non-linear tables of data for an aircraft, while  
3       the *aircraft.cfg* file includes parameters other than flight data, such as specification of the type and design of  
4       the landing gear and scaling factors that are to be applied to the aerodynamic data” (applicant’s  
5       specification, page 2, lines 14-21). Thus, applicant illustrates how the user is enabled to evaluate the flight  
6       characteristics of the design by interactive, simulated flying of the aircraft within a flight simulation program  
7       such as FLIGHT SIMULATOR 2002™ using the plurality of flight model data files (such as *aircraft.air* data  
8       file 28 and *aircraft.cfg* data file 30), wherein said interactive, simulated flying of the aircraft enables the  
9       user’s evaluation of the design to be substantially based on a point of view of a pilot flying the aircraft.

10       In contrast, Zyskowski does NOT teach or suggest that a user can evaluate the design of an aircraft  
11       that the user has designed in a flight simulation program using the flight model data files because previously  
12       there were no flight model data files that were even compatible with the flight simulator program. The  
13       Examiner has asserted that Zyskowski discloses applicant’s Claim 1 and has cited pages 1, 2, 6 and 11 in  
14       support of his assertion. The Examiner notes that Zyskowski post-dates the filing date of the application,  
15       but that it teaches prior art that pre-dates the filing date of the application. Specifically, the Examiner asserts  
16       that Zyskowski teaches on page 6, aerodynamic coefficients used to mathematically model airplane  
17       behavior. These equations are attributed to a reference from 1995 that of Roskam, Jan, Airplane Flight  
18       Dynamics and Automatic Flight Controls, Part 1, DAR Corporation, Lawrence, Kansas. Thus, the  
19       Examiner concludes that the coefficients were old and well known at the time the application was filed. In  
20       addition, the Examiner asserts that Zyskowski on page 2, teaches the use of an interactive “core simulation  
21       engine” in both Microsoft Flight Simulator (MSFS) and Microsoft Combat Flight Simulator (MSCFS). The  
22       Examiner notes that MSCFS was introduced a year after the release of FS98, which the Examiner interprets  
23       as being in 1997 or 1998. The interactive simulation using the “core simulation engine” was therefore on  
24       sale more than a year before the instant application was filed. The Examiner also notes that Zyskowski in  
25       the Abstract on page 1, teaches interactive simulated flying of the aircraft.

26       However, please refer to the attached Declaration of Michael K. Zyskowski, wherein the different  
27       versions of Microsoft Flight Simulator dating back to the versions titled “FS98” and “CFS1.0” as  
28       summarized in Enclosures A, B, C, D, and E and the Table, do not provide the user with the capability to  
29       design his or her own aircraft, produce flight model data files that are compatible with the simulator, and  
30       then “fly” the user-designed aircraft in the flight simulator.

1        Thus, the rejection of independent Claim 1 over the cited art should be withdrawn, at least because  
2        the cited art neither teaches nor suggests applicant's claim recitation of simulated flying of the aircraft using  
3        the plurality of flight model data files based on a user's design of the aircraft. Because dependent claims  
4        include all of the elements of the independent claim from which the dependent claims ultimately depend,  
5        dependent Claims 2-11 are patentable for at least the reasons discussed above in regard to independent  
6        Claim 1. Accordingly, the rejection of dependent Claims 2-11 under 35 U.S.C. § 102(b) should also be  
7        withdrawn.

8        Patentability of Independent Claim 12

9        Independent Claim 12 recites a method for enabling a user to create or modify a design for an  
10       aircraft and evaluate flight characteristics of the design as created or modified by the user. The Examiner  
11       has rejected independent Claim 12 for the same reasons for his rejection of independent Claim 1. However,  
12       because independent Claim 12 generally includes step (d) that is similar to step (d) of independent Claim 1,  
13       for the reasons given presented above for the patentability of independent Claim 1, the cited art does not  
14       disclose or suggest applicant's claim recitation of simulated flying of the aircraft using the flight model data  
15       that are based on a user's design of the aircraft.

16       Thus, the rejection of independent Claim 12 over the cited art should be withdrawn. Because  
17       dependent claims include all of the elements of the independent claim from which the dependent claims  
18       ultimately depend, dependent Claims 13-18 are patentable for at least the reasons discussed above in regard  
19       to independent Claim 12. Accordingly, the rejection of dependent Claims 13-18 under 35 U.S.C. § 102(b)  
20       should also be withdrawn.

21       Patentability of the Rejection of Independent Claim 19

22       Independent Claim 19 recites a system for enabling a user to create or modify a design for an  
23       aircraft and evaluate flight characteristics of the design. The Examiner has rejected independent Claim 19  
24       for the same reasons applied in his rejection of independent Claim 1. However, for the reasons presented  
25       above in connection with traversing the rejection of independent Claim 1, it will be apparent that the cited  
26       art does not disclose or suggest applicant's claim recitation of enabling a user to evaluate the flight  
27       characteristics of the design by simulating flying of the aircraft wherein the flight characteristics of the  
28       design simulated during flying are based upon the plurality of flight model data files.

29       Thus, the rejection of independent Claim 19 over the cited art should be withdrawn. Because  
30       dependent claims inherently include all of the elements of the independent claim from which the dependent

1 claims ultimately depend, dependent Claims 20-28 are patentable for at least the reasons discussed above in  
2 regard to independent Claim 19. Accordingly, the rejection of dependent Claims 20-28 under  
3 35 U.S.C. § 102(b) should be withdrawn.

4 Patentability of the Rejection of Independent Claim 29

5 Independent Claim 29 is directed towards a system for enabling a user to create or modify a design  
6 for an aircraft and evaluate flight characteristics of the design. The Examiner has rejected independent  
7 Claim 29 for the same reasons for his rejection of independent Claim 1. However, for reasons similar to  
8 those presented to demonstrate the patentability of independent Claim 1, the cited art does not disclose or  
9 suggest applicant's claim recitation of enabling the user to evaluate the flight characteristics of the design by  
10 simulating flying of the aircraft, using the flight model data.

11 Thus, the rejection of independent Claim 29 over the cited art should be withdrawn. Because  
12 dependent claims inherently include all of the elements of the independent claim from which the dependent  
13 claims ultimately depend, dependent Claims 30-34 are also patentable for at least the reasons discussed  
14 above in regard to independent Claim 29. Accordingly, the rejection of dependent Claims 30-34 under  
15 35 U.S.C. § 102(b) should be withdrawn.

16 In view of the Remarks set forth above, it will be apparent that the claims in this application define a  
17 novel and non-obvious invention. The application is in condition for allowance and should be passed to  
18 issue without further delay. Should any further questions remain, the Examiner is invited to telephone  
19 applicant's attorney at the number listed below.

20 Respectfully submitted,

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27 **Enclosures**

28 Declaration of Michael K. Zyskowski w/Enclosures A-E,